

Amendments to the claims

This listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of claims:

1. (Original) A method for continuous preparation of a well dispersed spherical hydrous zirconia particles with an average diameter (d_p) of 1~1,000 nm in the form of a sol, which method comprises continuously supplying the aqueous solution of a zirconium salt at a concentration of 0.001~ 0.5 mole/l to a reactor consisting of one or more than two reaction tubes at a temperature less than about 25 °C, heating the said aqueous solution in the reactor(s) in a continuous flow state up to the boiling point or less, and then discharging the said solution through the outlet of the said reactor(s).
2. (Original) A method for continuous preparation of a hydrous zirconia sol according to Claim 1 wherein the said aqueous solution of a zirconium salt is heated to 70~100 °C in the reaction tube.
3. (Original) A method for continuous preparation of a hydrous zirconia sol according to Claim 1 wherein the said aqueous solution of a zirconium salt flows in the reaction tube having circular or annular concentric cross section.
4. (Currently amended) A method for continuous preparation of a hydrous zirconia sol according to Claim 1 wherein a solvent constituting the said aqueous solution of a zirconium salt is a mixture of water and at least one alcohol selected from a the group consisting of ethyl alcohol, 1-propyl alcohol, 2-propyl alcohol and butyl alcohol; a mole ratio of the said alcohol/water mixture is 0.5~2.0:1; and a zirconium salt is selected from zirconium oxychloride, zirconium tetrachloride, zirconyl nitrate or zirconium sulfate.

5. (Original) A method for continuous preparation of a hydrous zirconia sol according to Claim 1 wherein the pH value of a hydrous zirconia sol is 5~12.
6. (Original) A method for continuous preparation of a hydrous zirconia sol according to Claim 1 wherein the average diameter (d_p) of the hydrous zirconia particles is about 10~250 nm.
7. (Currently amended) A method for continuous preparation of a hydrous zirconia sol according to Claim 1 wherein the cross sectional shape of the reaction tube is circular or concentric annular form, and the value of D is 0.01~3 cm when a diameter of the said circle or an equivalent diameter corresponding to a concentric annular region is " $D_{[.]}$ ".
8. (Currently amended) A method for continuous preparation of a hydrous zirconia sol according to Claim 1 wherein a dispersant is added to the said aqueous solution of a zirconium salt at the concentration of 0.05~20 g/[l].
9. (Currently amended) A method for continuous preparation of a hydrous zirconia sol according to Claim 1 wherein at least one compound as a stabilizer selected from a group consisting of ~~halide (chloride and bromide)~~ chloride, bromide, carbonate and nitrate of Y, Ca, Ce or Mg is further added to the aqueous solution of a zirconium salt so that the amount of the finally prepared ~~oxides~~ $\{Y_2O_3, CeO_2, CaO \text{ or } MgO\}$ may be up to 30 mole % on the basis of ZrO_2 .
10. (Currently amended) A method for continuous preparation of a hydrous zirconia sol according to Claim 5 wherein at least one compound selected from ~~a~~ the group consisting of urea ($CO(NH_2)_2$), cerium diammonium nitrate $((NH_4)_2Ce(NO_3)_6)$ and yttrium nitrate $(Y(NO_3)_3)$ is added to the aqueous solution of a zirconium salt to control the pH value of the solution.
11. (Original) A method for continuous preparation of a hydrous zirconia sol according to Claim 5 wherein an ammonia aqueous solution is added to the

reaction output discharging from the reaction tube to control the pH value of the output.

12. (Original) A method for continuous preparation of a hydrous zirconia sol according to Claim 5 wherein a gas containing ammonia (NH₃) is contacted with the reaction output discharging from the reaction tube to control the pH value of the output.
13. (Currently amended) A method for continuous preparation of a hydrous zirconia sol according to Claim ~~7~~ 8 wherein the said dispersant is at least one selected from ~~a~~ the group consisting of hydroxy-propyl methyl cellulose, hydroxy propyl cellulose, sodium oleate, potassium ethylxanthate, poly(acrylic acid), polyvinyl alcohol, polyoxyethylene nonionic surfactant, ethylene glycol, propylene glycol, 2-methyl-1,3-propanediol, glycerol, tartar acid, citric acid, malic acid and lactic acid.
14. (Original) A method for continuous preparation of a hydrous zirconia sol according to claim 7 wherein the solvent of the aqueous solution of a zirconium salt in the said reaction tube satisfies the following formula when measuring at the temperature of 25 °C:

$$\rho \cdot u \cdot D / \mu \leq 2,000$$

wherein, ρ represents the density (g/cm³) of the solvent, μ the viscosity(g/cm · sec) of the solvent, u the average flow velocity (cm/sec) of the solvent, and D the diameter or the equivalent diameter of the cross section.

15. (Original) A method for continuous preparation of a hydrous zirconia sol according to Claim 3 wherein the reaction tube is a coil type.
16. (Original) A method for continuous preparation of a hydrous zirconia sol

according to Claim 3 wherein the said reaction tube is partitioned into multiple heating zones.